Notice of Allowability	Application No.	Applicant(s)	
	10/083,246	JONES ET AL.	
	Examiner	Art Unit	
	Kenneth R Horlick	1637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the response filed 10/07/04*.

2. ☒ The allowed claim(s) is/are *1, 2, 4-17, and 19-25 (final claims 1-23)*.

3. ☒ The drawings filed on *26 February 2002* are accepted by the Examiner.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date ____.
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Kenneth R Horlick
Primary Examiner
Art Unit: 1637

EXAMINER'S AMENDMENT

I. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows, to present an appropriate "Listing of the Claims" in compliance with the revised amendment practice under 37 C.F.R. 1.121:

Listing of the Claims:

1. (Currently Amended) A method of mutation analysis of a target nucleic acid, said method comprising:

incubating a sample comprising said target nucleic acid in a reaction mixture, in the presence of at least one first nucleic acid and at least one second nucleic acid, wherein said first nucleic acid comprises a primer sequence which anneals to a unique site of a sequence of SEQ ID NO. 1 or 2, ~~and~~ said second nucleic acid has an opposite orientation from said first nucleic acid, said first or second nucleic acid comprises a sequence selected from the group consisting of SEQ ID NOs. 3-49; and wherein said incubation produces amplified products;

denaturing said amplified products and re-generating duplexes in said reaction mixture ~~amplified products~~; and

detecting the presence or absence of a heteroduplex from said duplexes, wherein the presence of a heteroduplex indicates the presence of a potential mutation in said target nucleic acid, and wherein the absence of a heteroduplex indicates the absence of a mutation in said target nucleic acid.

2. (Original) The method of claim 1, the method further comprising

determining the sequence of a heteroduplex region; and comparing the sequence of the heteroduplex region to SEQ ID NO. 1 or 2; wherein a sequence difference in the heteroduplex region compared to SEQ ID NO. 1 or 2 resulting in a predicted functional change in the protein encoded by said target nucleic acid is indicative of a mutation in said target nucleic acid.

3. (Canceled)

4. (Original) The method of claim 1, said method further comprising performing a nested amplification reaction using said amplified products generated by said first and second nucleic acids as templates and generating duplexes in amplified products from said nested amplification.

5. (Original) The method of claim 4, wherein said nested amplification reaction is performed using at least one primer selected from the group consisting of SEQ ID NOs. 3-49 and their complementary sequences.

6. (Original) The method of claim 1, wherein identifying the presence or absence of a heteroduplex from said duplexes is performed by DHPLC.

7. (Original) The method of claim 1, wherein the sequence of the heteroduplex region is determined by DNA sequencing.

8. (Original) The method of claim 1, wherein said second nucleic acid comprises a primer sequence which anneals to a unique site within a sequence of SEQ ID NO. 1 or 2.

9. (Original) The method of claim 1, wherein said sample comprising said target template is selected from the group consisting of: genomic DNA, cDNA, total RNA, mRNA, and a cell sample.

10. (Original) The method of claim 1, wherein said incubating comprises an amplification reaction selected from the group consisting of: a polymerase chain reaction, a ligase chain reaction (LCR) and a nucleic acid-specific based amplification.

11. (Original) The method of claim 1, further comprising confirming the amplified product is a PKD-specific product with one or more restriction enzymes.

12. (Original) The method of claim 11, wherein said restriction enzyme cleaves a PKD-specific product to generate a digestion pattern distinguishable from a PKD homologue product.

13. (Original) The method of claim 11, wherein said restriction enzyme is selected from the group consisting of: Pst I, Stu I, Xma I, Mlu I, Pvu II, BssHII, Fsp I, Msc I, and Bln I.

14. (Currently Amended) A diagnosis method for identifying a patient affected with PKD, said method comprising:

(a) obtaining a sample from an individual;

(b) incubating said sample in a reaction mixture, in the presence of at least one first nucleic acid and at least one second nucleic acid, wherein said first nucleic acid comprises a primer sequence which anneals to a unique site within a sequence of SEQ ID NO. 1 or 2, and said second nucleic acid has an opposite orientation from said first nucleic acid, said first and second nucleic acid comprises a sequence selected from the group consisting of SEO ID NOs. 3-49, and wherein said incubation produces amplified products;

(c) denaturing said amplified products and re-generating duplexes in said reaction mixture ~~amplified products~~;

(d) detecting the presence or absence of a heteroduplex from said duplexes, and

(e) determining the sequence of the heteroduplex region wherein the presence of

a mutation in the heteroduplex region as compared to SEQ ID No. 1 or 2 is indicative that said individual is affected with PKD.

15. (Original) The method of claim 14, wherein said detection of a heteroduplex is performed by DHPLC.

16. (Original) The method of claim 14, wherein said sequence is determined by DNA sequencing.

17. (Original) The method of claim 14, wherein said second nucleic acid comprises a primer sequence which anneals to a unique site within a sequence of SEQ ID NO. 1 or 2.

18. (Canceled)

19. (Original) The method of claim 14, said method further comprising performing a nested amplification reaction using said amplified products generated by said first and second nucleic acids as templates and generating duplexes from said nested amplification.

20. (Original) The method of claim 19, wherein said nested amplification reaction is performed using at least one primer selected from the group consisting of SEQ ID NOs. 3-49 and their complementary sequences.

21. (Original) The method of claim 14, wherein said sample is selected from the group consisting of: a genomic DNA, cDNA, total RNA, mRNA, and a cell.

22. (Original) The method of claim 14, wherein said amplification reaction is selected from the group consisting of: a polymerase chain reaction, a ligase chain reaction (LCR) and a nucleic acid-specific based amplification.

23. (Original) The method of claim 14, further comprising verifying a said specifically amplified product with one or more restriction enzymes.

24. (Original) The method of claim 23, wherein said restriction enzyme cleaves a PKD-specific product to generate a digestion pattern distinguishable from a PKD homologue product.

25. (Original) The method of claim 24 wherein said restriction enzyme is selected from the group consisting of: Pst I, Stu I, Xma I, Mlu I, Pvu II, BssHII, Fsp I, Msc I, and Bln I.

II. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth R Horlick whose telephone number is 571-272-0784. The examiner can normally be reached on Monday-Thursday 6:30AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on 571-272-0782. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kenneth R. Horlick, Ph.D.

Kenneth R Horlick
Primary Examiner
Art Unit 1637

10/26/04